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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,272	02/18/2004	Robert J. Koffron	KOFF 0124 PUS1	2056
22045	7590	07/23/2004	EXAMINER	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			KASTLER, SCOTT R	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 07/23/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/781,272	KOFFRON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Scott Kastler	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/18/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the above claims, the limitation in independent claims 1 and 14, and dependent claims 13 and 27, reciting certain specific gravity ranges (2.3-7.0 in claims 1 and 14 and 3.5-7.9 in claims 13 and 27) is not supported by the specification as originally filed, which at best recites that the specific gravity of the vortex inhibitor be less than the specific gravity of a molten metal (see page 4, lines 4-5).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The above claims are indefinite because both independent claims 1 and 14 now recite that the sacrificial member be constructed to dissolve before they obstruct the discharge nozzle. However, without any indication as to what the molten metal is (molten steel, aluminum or mercury for example, all of which have different temperatures and properties), and the depth

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of metal in a vessel from which the molten metal is to be poured (the residence time of the sacrificial member in the molten metal), as well as the discharge rate out of the molten metal nozzle, it is impossible to ascertain which constructions (the sacrificial members) would meet the limitation of dissolving before obstructing the discharge nozzle, thereby making the scope of the claims unascertainable.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9, 13-16 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastwood in view of either of Labate et al'734 or LaBate'903. Eastwood teaches a vortex inhibitor (1) comprising a uniform refractory body (2) having a generally tapering shape along a longitudinal axis from a base to a narrow end, and including a hollow chamber (3) which may include a shaft (15) and a "sacrificial member" (10) which may be hollow, and thereby inherently filled with molten metal when inserted into a molten metal bath (see claim 1 for example, where the internal metallic element is only optional), or in the form of a solid bar of metal or refractory (thereby "refractory filled") and optionally coated by a refractory (see col. 3, lines 50-54 for example), with or without the use of a central shaft (14) to which the member is fitted over and connected to the uniform refractory body by extended crimps (see col. 2 lines 48-56 for example) or protrusions (9), where the vortex inhibitor is inherently self orienting when

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supported in the molten metal, thereby showing all aspects of the above claims except the recitation that the vortex inhibitor have any particular specific gravity, since the member (10) would eventually dissolve in some unspecified molten metal at some unspecified temperature before reaching a discharge nozzle in some unspecified amount of time and the above claims as explained previously, allow for any molten metal at any temperature where the vortex inhibitor is immersed in the molten metal for any time before reaching the discharge nozzle. Both of Labate et al'734 (at col. 1 lines 40-46 for example) and LaBate'903 (at col. 1 lines 52-55 for example) teach that in order to more surely guide the vortex inhibitor to the tap hole of a metallurgical vessel during tapping, it was well known in the molten metal dispensing art at the time the invention was made to make vortex inhibitors with specific gravities within ranges including those instantly claimed (specific gravities higher than that of molten slag but lower than that of molten steel). Because the system of Eastwood would also desire improved efficiency in placing the vortex inhibitor, motivation to employ a vortex inhibitor with a specific gravity higher than that of molten slag but lower than that of molten steel as taught to be effective for this purpose by either of Labate et al'734 or LaBate'903, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastwood in view of either of Labate et al'734 or LaBate'903. As applied to claim 1 above, Eastwood in view of Labate et al'734 or LaBate'903 teaches a vortex inhibitor showing all aspects of the above claims except the specifically recited connection means for connecting the sacrificial member

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(12) and the uniform refractory body (2), or the use of a sacrificial member of any specific shape. However, Eastwood allows for the use of any desired connection means for connecting parts (2) and (12) including screw means (see col. 2 lines 28-31 for example). Eastwood also allows for of any desired generally tapering refractory shape for the head (2). The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because with respect to the particularly claimed connection means, as stated above, Eastwood allows for the use of any desired connection means, and it is Officially noted that screw threads, crimps and protrusions are old and well known connection mechanisms in the refractory connection art. It would have been a modification obvious to one of ordinary skill in the art at the time the invention was made to substitute the connection means disclosed by Eastwood and employ any other art recognized equivalent connection means, since Eastwood specifically allows for such a substitution. With respect to the use of any specific configuration for the head portion (2) of Eastwood, it has been well settled that where a component (the head) is shown by the prior art, motivation to alter the shape or configuration of the component without materially altering the function of the component would have been a modification obvious to one of ordinary skill in the art at the time the invention was made. See *In re Dailey*, 149 USPQ 47. Therefore, it would have also been obvious to one of ordinary skill in the art at the time the invention was made to employ a head member in Eastwood where the member is of any desired shape, since Eastwood allows for any desired generally tapering configuration of the head member and the shape of the head member has not yet been shown to materially alter the operation of the member or the apparatus as a whole.

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***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Each of Koffron et al (the parent of the instant specification) and Purchase are also cited as further examples of vortex inhibitors with extending "sacrificial" members.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Kastler whose telephone number is (571) 272-1243. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Scott Kastler  
Primary Examiner  
Art Unit 1742

sk